

### **Remarks**

This is submitted in response to the Official Action dated December 19, 2006 and the Official Action dated January 4, 2007, the substance of which appears to be a substantial duplicate of the December 19, 2006 Official Action.

The Applicants note with appreciation the withdrawal of the objection and one rejection under each of §112, first and second paragraph, as well as one rejection under §103 over Sakamoto.

Various of the claims are rejected over several formalities with respect to “dash marks.” The Applicants have accordingly amended Claims 1, 5, 17, 30, 34, 41, 42, 45 and 48. Withdrawal of the objection is respectfully requested.

Claims 2 and 18 stand rejected to as being in improper dependent form. The Applicants have accordingly amended Claims 2 and 18 to recite that the metal powder further comprises one or more elements selected from the group consisting of Mg and Al. Claims 1 and 17 have been amended to remove “zinc” from the characterization of “the metal zinc powder” so that there is proper antecedent basis for the “metal powder” language in each of Claims 2 and 18. Withdrawal of the objection of Claims 2 and 18 is respectfully requested.

Claims 1, 2, 5, 17, 18, 21 and 29-48 stand rejected under 35 U.S.C. §112, first and second paragraphs. The Applicants note with appreciation the Examiner’s detailed comments concerning each of the first and second paragraph rejections. The Applicants nonetheless respectfully submit that the Applicants’ Specification enables those rejected claims and that the claims themselves are definite within the meaning of §112. Detailed reasons are set forth below.

The Applicants first note that there are two percentage ranges that are recited in the above-mentioned rejected claims. First, there is a requirement that the powder content in the dry

paint film is about 20% to about 60% by volume. Then, there is a further requirement that the metal powder has a maximum content of less than or equal to 70% by mass.

The percent by mass and percent by volume recitations are separate recitations, both of which must be filled within the above-mentioned rejected claims. In other words, the metal powder content must meet the volume percentage requirement and, separately, must meet the mass percentage requirement.

The Applicants are unaware of any apparent confusion with respect to the percent by mass recitation. Thus, the comments below are directed to the percent by volume recitation. Turning first to Paragraph [0055] as the Examiner helpfully cited in the rejection, the Applicants note that this text indicates that commercially available paints have a zinc content greater than 60% by volume when the paint is dried into a dry film. That paragraph also notes that the commercially available zinc rich paints have a zinc content that is greater than 70% by mass when the zinc rich paint is in a dry paint film. These are separate observations with respect to the percent by volume and the percent by mass.

The Applicants calculate the percent by mass and the percent by volume. This is easily determined merely by referring to the Applicants' Specification at different locations from Paragraph [0055]. In that regard, the Applicants first invite the Examiner's attention to Paragraph [0067] wherein the manner in which the percent by mass of the dry paint film is determined. That text is in the paragraph spanning Pages 18 and 19 of the Applicants' Specification. Thus, the Applicants can readily determine the percent by mass of the metal powder in a way that is easily understood and easily performed by one skilled in the art.

The Applicants then invite the Examiner's attention to Paragraph [0125] wherein the manner in which the percent by volume is determined. That paragraph spans Pages 36 and 37 of

the Applicants' Specification. It is noted that the first portion of that paragraph is irrelevant to this discussion inasmuch as it refers to the determination of the thickness of the dry paint film. The second half of the paragraph refers to the determination of the metal powder by percent by volume. Again, this provides more than ample guidance to one skilled in the art as to what is meant by percent by volume and how it is determined.

In particular, the metal powder added to the corrosion-resistant film as recited in Claim 1 is a base metal whose ionization tendency is greater than iron. The metal powder may be of one or more elements selected from the group consisting of Mg, Al, and Zn as recited in Claim 2, each having a different density. For this reason, to cover a range, wherein the addition of metal powder having a different density is effective, the ratio of the metal powder in the corrosion-resistant film recited in Claim 1 is expressed not by weight percent, but by volume percent such that the range is specified in a wide range.

To further assist, the Applicants provide an example including an assumption wherein the film consists of zinc metal and epoxy resin only, and supposing that when a film is formed by mixing these metals and there are no changes in the volume of the film after drying, a conversion from percent by volume to percent by weight was carried out. Specifically, a conversion from percent by volume to percent by weight was carried out wherein, metal in the film recited in the element of Claim 1 is 20 to 60 percent by volume and the balance being epoxy resin.

In the conversion, density of Zn is  $7.1 \text{ (g/cm}^3\text{)}$ , while density of epoxy resin is  $1.2 \text{ (g/cm}^3\text{)}$ :

Supposing Zn in the film = 20 to 60 percent by volume, and the balance being resin => Zn in the film = 60 to 90 percent by weight, and the balance being resin.

A range of 70 percent by weight or less is included.

The corrosion-resistant film recited in Claim 1 includes, as set out in the Applicants' specification on page 27 at lines 4 to 7 from the bottom (Paragraphs [0075] and [0076]) includes, other than metal and epoxy resin, vinyl chloride resin of density of  $1.4 \text{ (g/cm}^3\text{)}$ , silicon resin of density of  $1.6 \text{ (g/cm}^3\text{)}$ , which are resins having density higher than epoxy resin of density of  $1.2 \text{ (g/cm}^3\text{)}$ , and further includes additives such as a hardening agent, a drying agent, a plasticizer, a dispersant, emulsifier, or the like. It is therefore possible that the density of the resin may possibly be  $1.2 \text{ (g/cm}^3\text{)}$  or more. Further, because the alteration in volume of the corrosion-resistant film which is formed by mixing these materials is unobvious, conversion from percent by volume to percent by weight is considered hard to be integrally carried out.

For example, when a metal and resin of different density ( $\text{g/cm}^3$ ) of 1.4 and 1.6, are used, a conversion from percent by volume to percent by weight is, as follows:

In a case of the conversion wherein the density of metal powder ( $\text{g/cm}^3$ ), Zn is 7.1 and density of resin ( $\text{g/cm}^3$ ) is tentatively 1.4

Supposing Zn in the film = 20 to 60 percent by volume, and the balance being resin => Zn in the film = 56 to 88 percent by weight, and the balance being resin

In a case of density of metal powder ( $\text{g/cm}^3$ ), Zn is 7.1 and density of resin ( $\text{g/cm}^3$ ) is tentatively 1.6

Supposing Zn in the film = 20 to 60 percent by volume, and the balance being resin => Zn in the film = 53 to 87 percent by weight, and the balance being resin

As a result of the above, the Applicants respectfully submit that the Applicants' Specification makes it clear that the percent by mass of the metal powder and the percent by volume of the metal powder are different requirements with respect to the above rejected claims

and the Applicants' Specification provides more than ample guidance to those skilled in the art as to what those terms mean and how they are determined. As a consequence, the Applicants respectfully submit that all of Claims 1, 2, 5, 17, 18, 21 and 29-48 are in full compliance with §112, both first and second paragraphs. Withdrawal of the rejection is respectfully requested.

Claim 41 stands rejected under 35 U.S.C. §103 over Sakamoto (WO 2002/099154/US 2003/0196715 A1). The Applicants note with appreciation the Examiner's helpful comments concerning the hypothetical application of Sakamoto to Claim 41. However, the Applicants respectfully submit that Sakamoto fails to teach or suggest the subject matter of Claim 41. In that regard, the Applicants have clarified in Claim 41 that the content of the metal powder in the dry paint film is less than or equal to 70% by mass. (This is in addition to the requirement that the content of the metal powder is about 20% to about 60% by volume.) In any event, Sakamoto teaches those skilled in the art that "it is necessary that the content of the metal powder in the coating film for securing the electric conductivity is 75 mass % or more" in Paragraph [0068] of the US publication. The Applicants respectfully submit that such overt teachings by Sakamoto would lead one skilled in the art away from the subject matter of Claim 41 which specifically recites that there should be 70% by mass or less of the metal powder. The Applicants further respectfully submit that there is no greater indicia of obviousness when the prior art leads in one direction and the claimed subject matter (here Claim 41) states that the claimed aspect should be in the opposite direction. As a consequence, the Applicants respectfully submit that Claim 41 is easily patentable over Sakamoto. Withdrawal of the rejection is respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



T. Daniel Christenbury  
Reg. No. 31,750  
Attorney for Applicants

TDC/as  
(215) 656-3381